

Remarks

The Examiner's entry and consideration of the Amendment filed February 15, 2005 is noted with appreciation. The withdrawal of the objection under 35 U.S.C. § 132 and the withdrawal of the rejections of claims 26, 39 and 52 under 35 U.S.C. § 112 ¶ 1 and of claims 13 and 16 under 35 U.S.C. § 112 ¶ 2 are also appreciated.

Denial of Priority

The Examiner has denied the subject matter of the amended claims the benefit of Provisional Application No. 60/482,807. In this respect, the Office Action indicates that the language "comparing of the user characteristic against biometric information of all authorized users stored in the one computer" is not recited in the provisional application. Based on this indication, the Applicant believes that the Examiner has taken the position that the provisional application does not describe the amended subject matter in a manner that is sufficient to comply with the written description requirement.

The Applicant respectfully submits that the written description requirement of 35 U.S.C. § 112 ¶ 1 does not require that the language of the amended claims be literally set forth in the priority document. The Federal Circuit has explained that the test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." *Ralston Purina Company v. Far-Mar-Co., Inc.*, 227 USPQ 177, 179 (Fed. Cir. 1985) (citing *In re Kaslow*, 217 USPQ 1089, 1096 (Fed. Cir. 1983)). The written description requirement is met when the skilled artisan would appreciate that the amended subject matter – in this case, the step

of comparing the user characteristic against biometric information stored in the computer – was being performed in the method described in the specification of the parent.

Stated another way, the fundamental inquiry is whether the material added by amendment was inherently contained in the original application. *TurboCare Division of Demag Delaval Turbomachinery Corp. v. General Electric Co.*, 60 USPQ2d 1017, 1022 (Fed Cir 2001). The Examiner's attention is also directed to MPEP § 2163.07(a), which states as follows:

By disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter. (citing *In re Reynolds*, 170 USPQ 94 (CCPA 1971))

In the present case, the provisional application states that prior to starting a trip, user characteristics (e.g., fingerprints, retinal biometric information) are loaded into a computer onboard an aircraft. (See, paragraph 0008, 1st sentence.) Further, the provisional application describes a fingerprint reader and/or retina reader associated with the controller (e.g. rudder) of the aircraft that detects whether an authorized person is flying the aircraft. (See, paragraph 0007 and paragraph 0008, 4th and 5th sentences.) Based on a fair reading of the entire specification, one skilled in the art would recognize that the way in which an authorized user is detected is by comparing the information read by the fingerprint/retina reader against the user characteristics that were loaded prior to the trip. Therefore, the subject matter of claim 6 is clearly disclosed in the provisional application and the denial of priority to the filing date of the provisional application is respectfully traversed.

The Applicant also traverses the denial of priority with respect to claims 7-11, 13-16, 18, 22, 23, 27-29, 31-33, 35-37, 40, 45, 48, 49, 53-54 and 56-58. However, in order to expedite prosecution, the Applicant will reserve individual argument on those claims until agreement is reached on substantive matters.

Rejection of Claims 62 and 64-66 Under 35 U.S.C. § 112 ¶ 1

Claims 62 and 64-66 have been rejected as allegedly failing to meet the written description requirement. In claim 62, the step of “identifying an unauthorized user” has been changed to “determining if the user is in a distressed state”. In addition, the condition where no pulse is detected has been eliminated from the claim. Support for the amendment can be found in the original specification in paragraph 0018 at the bottom of page 7.

Claim 64 has been amended to replace the recitation of “an authorization level assigned to the user” with “the ability to turn off and on the aircraft beacon system”. Claim 65 has been amended by deleting the recitation “wherein the authorization level ranges between limited authority and full authority, and is based at least in part on a task that is pre-assigned to a user”, and adding the recitation “wherein the designated permissions include the ability to service the aircraft”. In addition, claim 65 has been made dependent on claim 63. The dependency of claim 66 has also been changed to claim 63. Claim 66 has been further amended to recite that the designated permissions correspond to a category of personnel. Support for all of the amendments to claims 64-66 can be found in the original specification in paragraph 0016 at the bottom of page 5.

Objection to the Drawings Under 37 C.F.R. § 1.83(a)

The Examiner has objected to the drawings based on the assertion that certain claimed features are not shown. The disputed features include various method steps that have been cancelled from claims 62 and 64-66. Thus, it is believed that the objection is now moot.

The new claim elements that have been included in claims 62 and 64-66 are explicitly described in paragraph 0016 in a manner sufficient to provide one skilled in the art with an understanding of the subject matter sought to be patented in compliance with 37 C.F.R. § 1.81(a). It is respectfully submitted that no additional drawings are necessary with respect to the new claim elements.

Rejection of Claim 59 Under 35 U.S.C. § 112 ¶ 2

Claim 59 has been rejected based on the recitation of “the at least one biometric device”. The Applicant thanks the Examiner for his observation that the claims, from which claim 59 depends, do not recite such a device. Claim 59 has been amended by changing the recitation to “the security device”, which finds proper antecedent basis in independent claim 1.

Rejection of Claims 1-7, 59-60 and 68-69 Under 35 U.S.C. § 103(a)

Claims 1-7, 59-60 and 68-69 have been rejected as allegedly obvious over the theoretical combination of Seah and Gehlot. Seah describes an aircraft monitoring system that uses biometric devices to restrict access to the cockpit and other critical areas of the aircraft. Gehlot describes a system that uses a biometric scan to disable a vehicle so as to prevent its theft. For the reasons set forth in response to the Office Action of September 22, 2004, the Applicant

respectfully submits that claim 1 is patentable over the combination of Seah and Gehlot without amendment.

Nonetheless, claim 1 has been amended to more clearly define the invention and to expedite allowance of the application. Claim 1 is directed to a security mechanism for identifying authorized users and reacting to detection of unauthorized users. The system includes, among other things, a security device that is located so as to be able to read information associated with the user at any time while the user is attempting to operate the controller. The system further includes one or more monitoring devices, which perform several tasks. The one or more monitoring devices store information that was loaded into the monitoring device prior to flight as to all users authorized to operate the controller. The one or more monitoring devices also compare the information read by the security device against the stored information to determine whether the user is authorized to operate the controller. In addition, the one or more monitoring devices are operable to disable the controller and engage the autopilot if an unauthorized user is detected at the controller any time during flight.

Support for the amendment can be found in the original specification, for example, in paragraph 0018. The specification states that the pilot is required to hold the rudder to fly the aircraft, that the security device can detect the pilot's fingerprint/pulse while holding the rudder, and that the term to "fly" includes all phases of aircraft flight. In other words, the security device is located so as to be able to read information associated with the user at any time while the user is attempting to operate the controller. The same passage from paragraph 0018 provides support for the monitoring device being operable to disable the controller and engage the autopilot if an unauthorized user is detected at the controller at any time during flight. Support for the new

recitation “the stored information having been loaded into the monitoring device prior to flight” can be found, for example, in the first sentence of paragraph 0017.

Seah fails to describe or suggest several claim elements. Seah is silent as to loading biometric information. The time of loading biometric information (prior to flight) is one of the many advantages of the present invention and is discussed in more detail below.

In addition, the biometric device of Seah merely restricts access to the cockpit or other critical systems. The biometric device of Seah is not located so as to be able to read information associated with the user at any time while the user is attempting to operate the controller. As discussed in paragraph 0050, it is instead located at the cockpit door or access point for a critical system, such as the autopilot module or the communications systems. As such, Seah’s biometric device is located so that identification and authentication can be performed only when a user is attempting to gain access to the cockpit or a system - not at any time while the user is attempting to operate the controller, as claimed.

Further, the autopilot system of Seah is only put into a locked mode if the “alert mode” is activated. As described in paragraphs 0117 to 0121, the alert mode can be activated in four ways: (1) activation of a panic button, (2) detection of tampering, (3) entry of an unauthorized person into the cockpit, or (4) detection of suspicious activity by a “behavioral analyzer”. The first three mechanisms for triggering alert mode can occur only at specific points in time and in response to specific events. Those mechanisms cannot disable the controller and engage the autopilot if an unauthorized user is detected at the controller at any time during flight, as presently claimed.

As for the fourth mechanism, there is no description in Seah that the behavioral analyzer can monitor the cockpit or the user at the controller. In fact, Seah is devoid of any description as

to what the behavioral analyzer might be or how it works, rendering that mechanism of alert mode triggering completely non-enabled. Thus, the behavioral analyzer and the fourth mode of triggering alert mode also do not properly describe or suggest the present invention. Therefore, Seah fails to describe or suggest a system in which the user at the controller can be authenticated at any time while the user is attempting to operate the controller, or in which the controller can be disabled and the autopilot engaged if an unauthorized user is detected at the controller at any time during flight.

Gehlot does not cure the deficiencies of Seah. Gehlot is entitled “Highway Information System” and relates to collection of vehicle (primarily automobiles) and driving data, and distribution of that data to interested entities, such as hospitals, insurance companies and the DMV. The biometric security system cited in the Office Action is merely a small portion of the overall system. The Applicant respectfully submits that one seeking to solve the problem of aircraft hijacking would not look to the highway information system of Gehlot for solutions to the problem. Thus, Gehlot cannot be properly combined with Seah to form the basis for a rejection under 35 U.S.C. § 103. For this reason alone, the Applicant requests that the rejection be withdrawn.

However, even if Seah and Gehlot could be properly combined, the combination still does not render claim 1 obvious. Gehlot contemplates a retinal scan or hand print prior to starting the vehicle. If the information received from the scan does not match that stored, the vehicle becomes disabled, *i.e.*, undriveable. Gehlot is silent as to where the biometric security system is located. Gehlot describes only that the biometric information (retinal or hand scan) is input “upon entering the vehicle”. (*See*, col. 6, line 7.)

Gehlot leaves open the possibility that the hand scanner or retinal scanner is located remote from the driver seat, possibly even on the exterior of the vehicle. This is not a sufficient disclosure to consider that the biometric security system of Gehlot is located so as to be able to read information associated with the driver at any time while the driver is attempting to operate the vehicle (or controller). Keeping in mind that there is no back up system that could safely take over control of the vehicle if the vehicle were in motion when the vehicle became disabled, it is only necessary that Gehlot's security system check the driver's physical information before the vehicle is started. Because Gehlot's system is of little use after the vehicle is moving, it would be equally as appropriate, if not more so, to locate the security system on the exterior of the vehicle instead of at the driver seat, so that an unauthorized user cannot access the vehicle in the first place.

In any event, it is well settled that when a reference is silent as to a claim element, the element can be deemed inherent only if it is necessarily present in the reference. MPEP § 2112. The fact that a certain condition may be present in the prior art is insufficient to establish inherency. *In re Oelrich*, 212 USPQ 323, 326 (CCPA 1981). Thus, the location of the security system in Gehlot cannot be said to inherently be located so as to be able to read information associated with the user at any time while the user is attempting to operate the controller.

For these reasons, Gehlot fails to describe or suggest a biometric device located so as to be able to read information associated with the user at any time while the user is attempting to operate the controller.

Similarly, Gehlot fails to describe or suggest a monitoring device that is operable to disable the controller and engage an autopilot if an unauthorized user is detected at the controller at any time during flight. First, Gehlot does not contemplate an autopilot. Second, as discussed

above and in Gehlot at col. 6, lines 7-31, the authentication and vehicle disabling steps occur when the driver enters the vehicle. Gehlot does not contemplate repeating authentication or disabling the vehicle once the vehicle is under way. Moreover, there is no back up system that could safely take over control of the vehicle if the vehicle were in motion when the vehicle became disabled. Thus, it is clear that the disabling system is limited to use prior to starting the vehicle. For these reasons, Gehlot also fails to describe or suggest a monitoring device that is operable to disable the controller and engage the autopilot if an unauthorized user is detected at the controller at any time during flight.

For the reasons explained above, neither Seah nor Gehlot describe or suggest a security device that is located so as to be able to read information associated with the user at any time while the user is attempting to operate the controller. In addition, the combined references fail to describe or suggest a monitoring device that is operable to disable the controller and engage the autopilot if an unauthorized user is detected at the controller at any time during flight. For at least these reasons, claim 1 and its dependent claims 2-7, 59, 60 and 62-69 are patentable over the combination.

**Rejection of Claims 8, 9, 12-18, 20-22, 27-31, 33-35, 40, 41, 44-48, 53, 58, 61 and 70
Under 35 U.S.C. § 103(a)**

Claims 8, 9, 12-18, 20-22, 27-31, 33-35, 40, 41, 44-48, 53, 58, 61 and 70 have been rejected as allegedly obvious over the combination of Riley and Gehlot. Riley describes an in-flight aircraft flight crew authentication system. The system includes a fingerprint scanning device, a communications module, a microprocessor control module and a smart card reader for

the fingerprint scanning device. Gehlot describes a “Highway Information System” as discussed above.

Independent Claim 8

For the reasons set forth in response to the Office Action of September 22, 2004, the Applicant respectfully submits that independent claim 8 is patentable over the combination of Riley and Gehlot without amendment.

Nevertheless, independent claim 8 has been amended to expedite allowance of the application. The claim is directed to a security system for restricting operation of an aircraft, which includes, among other things, two or more biometric devices of different types for reading biometric information of a person at a rudder control attempting to operate the aircraft, in which the two or more biometric devices are located so as to be able to read the information at any time during flight.

Support for the claim amendment can be found in the original specification, for example, in Figure 2, and paragraphs 0013-0019. A first type of biometric device is shown and described as a fingerprint reader 119. A second type of biometric device is shown and described as a retina reader 121. Each of the devices is located so as to be able to read biometric information of a person at a rudder control at any time during flight.

Claim 8 is clearly distinguishable from Riley. Claim 8 recites two or more biometric devices of different types for reading biometric information of a person at a rudder control. The system defined by claim 8 has significant advantages over Riley, which only describes the use of fingerprint scanning devices. In the invention according to claim 8, the second type of biometric device provides an additional level of security (see, e.g., paragraph 0019 of the specification) by

creating a redundant system for authenticating the user and for engaging or disengaging the autopilot.

The system of claim 8 is highly advantageous over Riley. In the system of Riley, if a hijacker or other unauthorized user finds a way to breach the fingerprint reader authentication system, the hijacker can take control of the aircraft. In the system defined by claim 8, on the other hand, the redundant second type of biometric device can still detect the hijacker even if the first type of device is overcome. Thus, the aircraft controls will be disabled and the autopilot engaged even if the first security system is breached.

Gehlot fails to cure the deficiencies of Riley with respect to the elements of claim 8. As explained above, Gehlot relates to a “Highway Information System” that includes a biometric security system to prevent theft of vehicles. When an unauthorized driver is detected, the vehicle becomes disabled, *i.e.*, undriveable. Gehlot’s system would not be applicable to an aircraft in flight because the system provides no back up to safely fly an aircraft while the controls are disabled. The Applicant again respectfully submits that one seeking to solve the problem of aircraft hijacking would not look to the highway information system of Gehlot for solutions to the problem. Thus, Gehlot cannot be properly combined with Riley to form the basis for a rejection under 35 U.S.C. § 103. For this reason alone, the Applicant requests that the rejection be withdrawn.

However, even if Riley and Gehlot could be properly combined, the combination still does not render claim 8 obvious. Claim 8 recites that the two or more biometric devices of different types are located so as to be able to read the information at any time during flight. As explained above, Gehlot is silent as to where the biometric security system is located. Gehlot describes only that the biometric information (retinal or hand scan) is input “upon entering the

vehicle". (See, col. 6, line 7.) Gehlot leaves open the possibility that the hand scanner or retinal scanner is located remote from the driver seat, possibly even on the exterior of the vehicle. Thus, Gehlot fails to describe a biometric security system located so as to be able to read biometric information of a person at a rudder control at any time during flight, let alone a system that includes two or more biometric devices of different types that are so located. Because there is no back up system that could safely take over control of the vehicle if the vehicle were in motion when the vehicle became disabled, Gehlot's security system is of little use after the vehicle is moving, and, consequently, Gehlot provides no suggestion to perform biometric scans after the vehicle has been started. Thus, Gehlot does not describe or suggest a biometric device, let alone two such devices, located so as to be able to read biometric information of a person at a rudder control at any time during flight.

As explained more fully above, Gehlot provides no description or suggestion, explicitly or inherently, to provide two or more biometric devices of different types for reading biometric information of a person at a rudder control attempting to operate the aircraft, in which the two or more biometric devices are located so as to be able to read the information at any time during flight. Thus, Gehlot fails to cure the deficiencies of Riley with respect to the elements of claim 8; and the combination, even if made, does not render the claim obvious. Thus, claim 8 and its dependent claims 9-13, 61 and 70 are patentable thereover.

Independent Claims 14 and 27

For the reasons set forth in response to the Office Action of September 22, 2004, the Applicant respectfully submits that independent claims 14 and 27 are patentable over the combination of Riley and Gehlot without amendment.

Nevertheless, independent claims 14 and 27 have been amended to expedite allowance of the application. According to independent method claim 14, biometric information regarding all persons of a designated flight, who are authorized to operate the aircraft, is electronically loaded prior to each flight. Claim 14 also recites the steps of receiving biometric information read by one or more biometric devices from any person attempting to operate the aircraft at any time during flight, and of comparing that information with the data loaded prior to flight. Claim 27 is directed to a system having means for performing these steps.

Support for the claim amendments can be found in the original specification, for example, in paragraph 0017 and in original claims 14 and 27. The original claim 14 recited the step of electronically storing biometric information regarding persons of a designated flight authorized to operate the aircraft. Paragraph 0017 explains that this can be done by loading, prior to each individual flight, into the aircraft computer biometric data that was previously taken from the crew. The paragraph further explains that the biometric information can alternatively be read from the flight crew and loaded at the time of boarding prior to each individual flight. In each instance, it is clear that the biometric data of the flight crew designated for a particular flight is loaded prior to each flight. Paragraph 0017 and other sections in the specification also describe exemplary means for performing these steps.

As explained above, the Applicant respectfully submits that Riley and Gehlot cannot properly be combined to form the basis of a rejection under 35 U.S.C. § 103. However, even when combined, the references fail to describe or suggest each element of claims 14 and 27. Riley does not describe or suggest the step of loading biometric information prior to each flight for all persons designated for that flight. Nor does Riley describe or suggest the step of comparing information read from any person attempting to operate the aircraft at any time during

flight with the data loaded prior to flight. Riley also fails to describe or suggest the means for doing so. Instead, Riley describes the use of smart cards that contain the user's biometric information. The smart cards must be present in the smart card reader at the time pilot authentication is attempted. As described in paragraphs 0053 and 0059 of Riley, the control module continuously checks for the presence of a smart card. If no smart card is found, the communications module can then signal the autopilot system to initiate a preprogrammed safe flight pattern. The comparison that is performed by Riley is between the information collected from the user at any particular time and the information on the smart card that is present at that same time. In summary, Riley fails to contemplate the comparison of biometric data of persons designated for a particular flight that was loaded prior to the flight against information read from an individual during the flight.

The method defined by claim 14 and the system of claim 27 have significant advantages over that of Riley. In the method of claim 14, the biometric data of persons designated for a particular flight is loaded prior to that flight, while the aircraft is on the ground and security is optimal. This prevents a would-be hijacker from tampering with the information against which biometric information of the user is to be compared when the aircraft is in flight. In contrast, the Riley method reads the biometric data used for comparison from the smart card at the time the user's information is read. Thus, the Riley system leaves open the possibility of a hijacker tampering with the smart card data, which is used for the critical comparison, during flight when the aircraft is away from security on the ground and is most vulnerable. As such, Riley fails to suggest or describe the advantageous step of loading the critical data for the designated flight crew prior to each flight while the aircraft is on the ground and in its most secure environment.

Moreover, the loading of biometric data prior to each flight, as recited in claims 14 and 27, allows greater control over the critical data to be used for comparison than does the system of Riley. Because the biometric data is loaded prior to each flight, data regarding authorized personnel can be limited to the persons designated for the particular flight. Riley, on the other hand, permits anyone with a smart card to operate the aircraft, leaving open the possibility of a terrorist boarding the aircraft as a passenger with a counterfeit smart card. Another open possibility is a terrorist that is an airline employee, but not part of the designated crew, carrying an authentic smart card with the intention of taking control of a strategic flight. These disturbing possibilities are eliminated by the invention according to claims 14 and 27 because the biometric data used for comparison can be limited to the individuals designated for the particular flight. For this reason also, the inventions defined by claims 14 and 27 are clearly distinguishable from, and advantageous over, the system of Riley.

Gehlot also fails to describe or suggest the steps recited in claim 14 or the means for performing them. As the Examiner pointed out in the Office Action, Gehlot stores biometric data in storage unit 7. The process of storing the information is described starting at column 5, line 63. The owner of the vehicle “will first set-up the system by storing the driver’s physical data onto the data storage device 7.” One skilled in the art would understand that the step of “setting-up” the system would be performed only once, perhaps at the time the owner buys the vehicle. The term “set up” conveys that the data is loaded once, at the time the system is started – *i.e.*, when the owner buys the automobile. According to the New Webster’s Dictionary of the English Language (Delair Publishing Co. 1981, page 883 enclosed), the term “set up” means to establish; as, to set up a government; to organize to commence, as a new business … to begin a new business; to come into use. Because an automobile that would be used in Gehlot’s traffic

safety system would be personal property owned and used by a small, consistent group of people, there would be no need to “set up” the system more than once, and certainly not before each trip. Thus, based on a fair reading of Gehlot, the system merely enters the driver’s data into the storage unit once when the vehicle is placed in service. There is no suggestion in Gehlot to load biometric information regarding the designated crew for a particular flight prior to each flight. As such, there can be no suggestion to compare biometric information read from the driver of Gehlot’s vehicle to information that was loaded prior to each flight.

Thus, Gehlot fails to cure the deficiencies of Riley with respect to claims 14 and 27. As such, the combination of Riley and Gehlot, even if made, does not render claims 14, 27 or their dependent claims 15-26 and 28-39 obvious.

Independent Claim 40

For the reasons set forth in response to the Office Action of September 22, 2004, the Applicant respectfully submits that independent claim 40 is patentable over the combination of Riley and Gehlot without amendment.

Nevertheless, independent claim 40 has been amended to expedite allowance of the application. Claim 40 is directed to an aircraft having a combination of features including, among other things, a fingerprint/pulse reader capable of detecting an irregular pulse that signifies that the person attempting to operate the controller is in a distressed state. In addition, the combination of claim 40 includes a GPS system in communication with the one or more monitoring systems, where the GPS system is configured to send position information to designated locations when an unauthorized person is identified and when the aircraft flies off its normal course.

Support for the claim amendment relating to the pulse reader can be found in the original specification, for example, in paragraph 0018, 4th through 6th lines from the bottom (bottom of page 7). Support for the element relating to the GPS unit can be found in paragraph 0016, 3rd through 6th lines from the bottom (middle of page 6) and in original claim 53.

As previously explained, the Applicant respectfully submits that Riley and Gehlot cannot properly be combined to form the basis of a rejection under 35 U.S.C. § 103. However, even when combined, the references fail to describe or suggest each element of claim 40. Neither Riley nor Gehlot describe or suggest the use of a GPS unit to send position information when an aircraft flies off its normal course. In paragraph 0041, Riley merely indicates that the communications module can include a GPS so that it can relay positional data when a predetermined emergency signal is transmitted. In Riley, the transmission of an emergency signal is only triggered when the system is unable to authenticate the identity of an individual at the controls. (*See*, paragraph 0050.) Riley fails to contemplate the use of a GPS that is configured to send position information when the aircraft flies off course.

Gehlot similarly fails to suggest or describe the use of a GPS to send position information if the aircraft flies off course. Much like Riley, the GPS of Gehlot is used to send position information if an unauthorized driver is detected. As explained in column 6, lines 27-48, the purpose of the GPS is to provide information to the police so that the vehicle can be located when the unauthorized driver is detected. The Gehlot system includes no mechanism by which the transmission of positional information could be triggered by the vehicle traveling off course. Gehlot, having no means of inputting or storing a flight plan, includes no mechanism to even determine if the vehicle travels off course. Thus, Gehlot also includes no description or suggestion of the recited feature.

In addition, neither Riley nor Gehlot describe or suggest a system having a fingerprint/pulse reader capable of detecting an irregular pulse that signifies that the person attempting to operate the controller is in a distressed state. Riley merely discloses that a scanner can have live finger detection capabilities. There is no description or suggestion that the scanner can differentiate between a regular pulse and an irregular pulse. Gehlot similarly includes no such description.

It is noted that original claims 24, 37 and 50, which relate to detection of an unusual pulse, have been rejected based on Riley and Gehlot in further combination with Osten and Ott. Osten describes a fingerprint scan in combination with pulse oximeter data to determine if the user is incapacitated, dismembered or deceased. (*See*, col. 4, lines 15-23.) There is no description or suggestion to detect an irregular pulse to signify that the user is in a distressed state.

Ott describes an apparatus for automatic machine interrogation of individuals. The apparatus applies physical vibration wave energy (col. 3, line 5) to a part of the human body and detects resultant force and motion variations. Ott indicates that the collected data is indicative of the body part characteristics. Ott includes no description of measuring a pulse, let alone an irregular pulse. It is noted that the Office Action mailed September 22, 2004 indicates that it would be functionally inherent in a human being under duress to have an unusual pulse. Based on that characterization, the September 22 Office Action states that the combined system of Riley and Osten (as modified by Ott) would be able to determine that the measured pulse is outside of a normal pulse range. Based on these statements, the Applicant understands that the Examiner has taken the position that it would be an obvious modification or optimization to place a pulse reader that can measure an unusual pulse into the system of Ott, Riley or Osten or

that one of those references must somehow inherently describe the detection of an irregular pulse.

As to the latter possibility, it has already been noted that a claim element can be deemed inherent only if it is necessarily present in the reference. The fact that a certain condition may be present in the prior art is insufficient to establish inherency. *In re Oelrich*. In the case of each reference, a pulse reader that can measure an unusual pulse is not inherently disclosed because each reference accomplishes its objective without the use or need for such a device – Riley and Osten by monitoring pulse (without necessarily detecting an irregular pulse), and Ott by measuring force and motion variations caused by applied physical vibration wave energy.

Thus, the rejection is believed to be based on the former possibility, that it would have been an obvious modification or optimization to place a pulse reader that can measure an unusual pulse into one of the prior art systems. This is exactly the type of rejection that was stricken down by the Federal Circuit in *In re Rijckaert*, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). See, MPEP § 2112, (characterizing *Rijckaert* as having “reversed [a] rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art”). In the present case, it is clear that none of the references describe the affirmatively recited claim element of a fingerprint/pulse reader capable of detecting an irregular pulse that signifies that the person attempting to operate the controller is in a distressed state. The fact that a reference could be theoretically modified to include the claim element is clearly insufficient.

None of the references cited (Riley, Osten and Ott) include any description of a fingerprint/pulse reader capable of detecting an irregular pulse that signifies that the person attempting to operate the controller is in a distressed state. Because the claim element is not

described, suggested or inherently present in any reference of record, it cannot be considered inherent to the theoretical combination. For this reason (in addition to the novel use of a GPS system, discussed above), claim 40 and its dependent claims 41-52 and 54-58 are patentable over the cited combination.

Rejection of Dependent Claims Under 35 U.S.C. § 103(a)

Claims 10-11, 19, 32 and 42 have been rejected over Riley and Gehlot in further combination with Osten. Claims 23, 25-26, 36, 38-39, 49, 51-52 and 54-57 have been rejected over Riley and Gehlot in further combination with Seah. Claims 24, 37 and 50 have been rejected over Riley and Gehlot in further combination with Osten and Ott. Claim 62 has been rejected over Seah and Gehlot in further combination with Osten. Claims 63-67 have been rejected over Seah and Gehlot in further combination with Anthony.

For the reasons set forth above, it is respectfully submitted that each of the base claims (1, 8, 14, 27 and 40), from which these claims depend, are patentable over the references of record. Therefore, each of the dependent claims are patentable for at least the same reasons. The Applicant reserves further comment on the merits of the dependent claims pending disposition on the merits of the base claims.

New Claim

The Examiner's consideration of the arguments presented in response to the Office Action of September 22, 2004 is appreciated. The Examiner's thoughtful observation that certain features - namely that the various controls can be locked out when an unauthorized user is

detected at any time prior to takeoff and/or during flight, and in one identification step - were not literally set forth in the claims is also noted with appreciation.

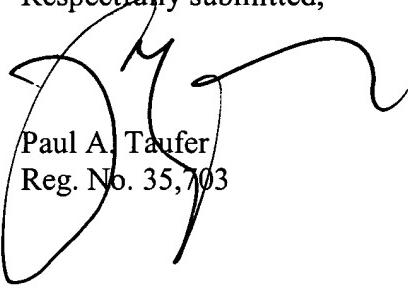
New claim 71 has been added to the application so that those features are affirmatively recited. The new claim depends from claim 1 and further defines the one or more monitoring devices as operable to disable the controller at any time prior to takeoff and at any time during a flight, and in one identification verification step. The new claim is believed to be patentable for the reasons set forth in response to the September 22 Office Action.

Support for new claim 71 can be found in the specification in paragraph 0018. That paragraph describes that the monitoring system is in communication with the fingerprint/pulse reader to verify the identity of the user. In one identification step (step 214 in Fig. 4), the monitoring system identifies an authorized pilot and permits the authorized pilot to fly the aircraft. However, when an unauthorized user is detected, the rudder control is disabled so that the unauthorized user cannot fly the aircraft. The paragraph also indicates that the term "fly" includes any time prior to takeoff and at any time during a flight. Thus, paragraph 0018 includes a description of the newly claimed subject matter.

Conclusion

For the reasons set forth above, it is respectfully submitted that the claims are patentable over the references cited. It is respectfully requested that all of the rejections and objections be reconsidered and withdrawn. The application is now in condition for allowance, and a Notice of Allowance is solicited. If the Examiner believes that further minor amendments or correction of matters of form will advance the application, the Examiner is invited to telephone the Applicant's below-signed representative.

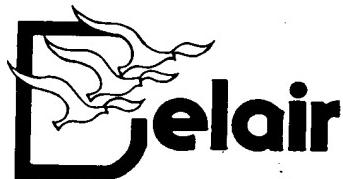
Respectfully submitted,



Paul A. Taufer
Reg. No. 35,703

PAT:SAN:nn
215-656-3303

New Webster's Dictionary of the English Language



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but which are now trained to stand stiffly and point the muzzle toward the scented game; see *English setter*, *Gordon setter*, *Irish setter*.

set·o·ry, *n.* A division of mathematics which deals with sets and the relations between sets.

set·ting, *set·ing*, *n.* The act of one who or that which sets; the manner or position in which anything is set; that in which something, as a jewel, is set or mounted; the surroundings or environment of anything; the scenery, costumes, and the like of a play; a piece of music composed for certain words, as poetry; eggs put together in a certain place for hatching; the items, as silver, china, or glass, needed to set one place at a table or an entire table.

set·tle, *setl*, *v.t.* *settled*, *settling*. [*< set*; a freq. in form = O.E. *setlan*, to seat, to place.] To resolve, determine, or fix conclusively; as, to settle on a selling price; to place in order or a proper state; to pay, satisfy, or close, as an account or claim; to colonize or establish residence in; to furnish with settlers or inhabitants; to establish or fix in any way of life, occupation, dwelling, or the like; to quiet or free of agitation; to place in a fixed or permanent position; to clear, as liquid, of dregs or sediment by causing them to sink; to cause to sink to the bottom; to make compact or firm by causing to sink gradually; to bring to a conclusion, finish.

Law, to secure or assign by legal act; as, to settle property; to terminate by mutual agreement of the litigants; as, to settle a lawsuit.—*v.i.* To come to an agreement, decision, or resolution, often followed by *on or upon*; to pay or adjust an account, bill, or debt; to establish residence in a different country or place; to cease moving and come to rest; to become fixed in a certain area or position; to become calm or free from agitation, often followed by *down*; to sink or fall gradually or subside; to become transparent or clear by the sinking of particles or sediment; to become compact or firm; said of an animal, to conceive.—*set·tle down*, to begin living an orderly, routine life after being independent or irresponsible; as, to settle down after marriage; to become composed or calm; to become absorbed in or apply oneself to one's assignment, work, or the like.

set·tle, *setl*, *n.* [O.E. *setl*, seat; from the root of E. *sit*.] A long seat or bench, with arms and a high back, usu. made of wood, and sometimes enclosed from the bottom of the seat to the floor to form a storage chest; a ledge or platform.

set·tle·ment, *setl·ment*, *n.* The act of settling or state of being settled; establishment in life or business; the act of colonizing or peopling; colonization; a tract of land which has been colonized, esp. a colony in the early stages of development; the adjustment or liquidation of a claim or account; the sinking or settling of a building. *Law*, a deed by which property is settled; the property settled in such a way. *Relig.* a community inhabited by members of one ideological group; *Brit.* the right of a pauper to maintenance in a particular parish or town. An establishment providing educational and social services to the people of a particular slum area; also *set·tle·ment house*.

set·tler, *setl·er*, *n.* One who settles, esp. one who fixes his residence in a new region or country; a colonist; that which or one who decides anything definitely.

set·tling, *setl·ing*, *n.* The act of one who settles or that which sinks. *Pl.* dregs; sediment.

set·tlor, *setl·er*, *n.* *Law*, one who makes a settlement of property.

a- fat, fâte, fär, fare, fall; e- met, mē, mère, hér; i- pin, pine; o- not, nôte, möve; u- tub, cube, bull; oi- oil; ou- pound.

set-to, *settō*, *n.* pl. *set-tos*. A brief but intense argument or fight.

set up, *v.t.* To elevate to a high station or position; to place, as a statue, upright; erect; to establish; as, to set up a government; to organize to commence, as a new business; to utter loudly; as, to set up a loud cry; to put in superior position; to propose; as, to set up a doctrine; to make upright in posture, as by exercise; to raise from depression; to restore to health and vigor.—*v.i.* To begin a new business; to come into use; to lay claim to; as, to set up to be better than others.

set·up, *set'up*, *n.* The way in which something is arranged or organized; makeup; the plan, preparation, or arrangement for performing or accomplishing a specific task or undertaking; a plan of action; the manner of carrying the body; poise. *Colloq.* the glassware and ingredients, except liquor, provided to one mixing his own drink; a match, contest, game, task, or undertaking made easy to win or accomplish; a table setting, esp. in a restaurant. *Sports*, the position of a ball, puck, or the like, as in pool or hockey, affording an easy score or point; the play resulting in a score or victory.

sev·en, *sev'n*, *n.* [O.E. *seofon* = D. *zeven*, Goth. and O.H.G. *sibun*, Icel. *sjau*, Dan. *søv*, W. *saith*, Ir. *seacht*, Russ. *semj*, L. *septem*, Gr. *hepta* (for *septa*), Pers. *haft*, Skt. *saptan*.] The cardinal number between six and eight; a symbol representing it; a set of seven persons or things.—*a.*

sev·en seas, *n.* *pl.* (*Sometimes cap.*) the oceans of the world.

sev·en·teen, *sev'en·tēn'*, *n.* The cardinal number between sixteen and eighteen; a symbol representing it; a set of seventeen persons or things.—*a.*

sev·en·teenth, *sev'en·tēn'th*, *a.* Following the sixteenth; being the ordinal of 17; being one of 17 equal parts into which anything is divided.—*n.* One of 17 equal parts; that which follows the sixteenth in a series.

sev·en·teen-year lo·cust, *sev'en·tēn'yr' lō'kust*, *n.* The periodical cicada, *Magicicada septendecim*, the nymph of which grows from 13 to 17 years in the ground before emerging as an adult locust to shed the nymphal covering, mate, lay eggs, and then die.

sev·enth, *sev'enth*, *a.* Following the sixth; being the ordinal of seven; being one of seven equal parts into which anything is divided.—*n.* One of seven equal parts; that which follows the sixth in a series; *mus.* the interval between the first and the seventh note of the diatonic scale.—*adv.*

sev·enth chord, *n.* *Mus.* a chord consisting of a root tone plus its third, fifth, and seventh.

sev·enth-day, *sev'en·th·dā'*, *a.* (*Often cap.*) designating any of certain Christian religious bodies who make Saturday their chief day of rest and religious observance; as, *Seventh-Day Adventists*.

sev·enth heav·en, *n.* A state of great joy or happiness; in certain religious faiths, as Islam, the heaven of God and the archangels.

sev·en·ti·eth, *sev'en·tē·i·th*, *a.* Following the sixty-ninth; being the ordinal of 70; being one of 70 equal parts into which anything is divided.—*n.* One of 70 equal parts; that which follows the sixty-ninth in a series.

sev·en·ty, *sev'en·tē*, *n.* The cardinal number between 69 and 71; a symbol representing it; a set of 70 persons or things.—*a.*

sev·en·ty-eight, *n.* The cardinal number between 77 and 79; a symbol representing it; a set of 78 persons or things. A phonograph record meant to be played at 78 revolutions per minute.—*a.*

sev·en-up, *sev'en·up*, *n.* A card game played by two or more persons, in which there are four special chances of scoring a point, seven points constituting a game. Also *all-fours*, *high-low-jack*, *old sledge*, and *pitch*.

sev·er, *sev'er*, *v.t.* [O.Fr. *sevrer*, *severer*, < L. *separare*, to separate.] To part or divide, esp. by force; to separate into parts by cutting or rending; cleave; to disjoin or break off, as a relationship or family tie; disunite.—*v.i.* To undergo separation; to be divided.—*sev·er·a·bil·i·ty*, *n.* —*sev·er·a·ble*, *sev'er·a·bl*, *a.*

sev·er·al, *sev'er·al*, *a.* [O.Fr. *several*, < *severer*.] More than two but not very many; divers; separate or respective; as, experts in their *several* areas; individual, distinct; as, *several* attempts; *law*, relating separately to each participant in a joint contractual obligation.—*n.* A small number of persons or things; some; a few considered individually.—*sev·er·al·i·ty*, *sev'er·a·lē*, *sev'rə·lē*, *adv.*

sev·er·al·fold, *sev'er·al·föld*, *sev'rəl·föld*, *a.* Several times as great as or much; consisting of several parts, ways, or aspects.—*adv.*

sev·er·al·ty, *sev'er·al·tē*, *n.* *pl.* *sev·er·al·ties*. The state or quality of being distinct or separate. *Law*, the condition of being the exclusive owner of property, of holding land by individual right; the property or land so held.

sev·er·ance, *sev'er·ans*, *sev'rəns*, *n.* The act of severing or state of being severed; separation; partition.

se·vere, *si-vēr'*, *a.* —*severer*, *severest*. [Fr. *sevère*, < L. *severus*, serious, severe; seen also in *persevere*, *asseverate*.] Very strict or unnecessarily harsh in discipline, government, or judgment; as, *severe* punishment; serious, austere, or stern in disposition, appearance, or manner; critical or serious; as, a *severe* disease; plain, simple, or restrained in manner, decoration, or style; causing physical discomfort or pain, hardship, or distress; as, *severe* weather; rigorous, arduous, or difficult to undergo or perform; as, a *severe* test or examination; rigidly or scrupulously methodical or exact.—*se·vere·ly*, *adv.* —*se·vere·ness*, *n.*

se·ver·i·ty, *si·ver'i·tē*, *n.* *pl.* *se·ver·i·ties*. [L. *severitas*.] The quality or state of being severe; harshness or sternness of treatment, condition, or disposition; extreme simplicity or plainness; sharpness or keenness, as of weather or injury; seriousness or gravity; exactness or methodicalness; strict conformity to rules, standards, laws, and the like.

Sè·vres, *sev're*, *sev*, Fr. *se'vRe*, *n.* A kind of porcelain ware of high quality, manufactured at Sèvres, France. Also *Sè·vres ware*.

sew, *sō*, *v.t.* *past sewed*, *pp. sewn or sewed*, *ppr. sewing*. [O.E. *swian*, *sworwan*, to sew = O.H.G. *swiwan*, Goth. *swijan*, Dan. *seye*, Icel. *sýja*; cogn. L. *suo*, Skt. *swi*, to sew. *Seam* is from this stem.] To unite or fasten together with stitches; to make or mend with needle and thread; to enclose with stitches.—*v.i.* To practice sewing; to join things together with stitches.

sew·age, *sō'jē*, *n.* [*< old verb sew*, to drain, < O.Fr. *essuier*, to drain, < L. *ex*, out, and *aqua*, water.] The waste matter carried away by sewers. Also *sewage*.

sew·er, *sō'ér*, *n.* [O.Fr. *essuier*, *essuyer*, a drain, a conduit.] An artificial channel or canal, usu. underground, which carries off drainage water and other waste materials.

sew·er, *sō'ér*, *n.* One who sews or that which sews.

sew·er, *sō'ér*, *n.* [*< O.Fr. assegier*, to seat guests.] In medieval Europe, a household